CLAIMS

1. A rotary compressor comprising a rotation mechanism **(20)** including a cylinder **(21)** having an annular cylinder chamber **(50)**; an annular piston **(22)** contained in the cylinder chamber **(50)** eccentrically from the cylinder **(21)** and sectioning the cylinder chamber **(50)** into an outer compression chamber **(51)** and an inner compression chamber **(52)**; and a blade **(23)** disposed in the cylinder chamber **(50)** and sectioning each said compression chamber **(51, 52)** into a high-pressure side and a low-pressure side, said rotation mechanism **(20)** compressing a fluid by relatively rotating the cylinder **(21)** and the piston **(22)**,

wherein one of the two compression chambers **(52, 51)** serves as a low-stage side compression chamber **(51)** for compressing a low-pressure fluid into an intermediate-pressure fluid, and

the other of the two compression chambers **(52, 51)** serves as a high-stage side compression chamber **(52)** for compressing the intermediate-pressure fluid compressed in the low-stage side compression chamber **(51)** into a high-pressure fluid.

2. The rotary compressor of Claim 1, wherein

the outer compression chamber **(51)** serves as the low-stage side compression chamber **(51)**, and the inner compression chamber **(52)** serves as the high-stage side compression chamber **(52)**.

3. The rotary compressor of Claim 1 further comprising a casing **(10)** containing the rotation mechanism **(20)**,

wherein an intermediate-pressure space **(4b)** into which the intermediate-pressure fluid compressed in the low-stage side compression chamber **(51)** is introduced is formed inside the casing **(10)**, and

a gas injection pipe **(1c)** through which a gas is injected into the intermediate-pressure space **(4b)** is connected to the casing **(10)**.

4. The rotary compressor of Claim 1 further comprising a driving mechanism **(30)** for driving the rotation mechanism **(20)**,

wherein the rotation speed of the driving mechanism **(30)** is variably controlled.

5. The rotary compressor of Claim 1 further comprising a casing **(10)** containing the rotation mechanism **(20)**,

wherein the casing **(10)** is formed internally with an intermediate-pressure space **(4b)** into which the intermediate-pressure fluid compressed in the low-stage side compression chamber **(51)** is introduced and a high-pressure space **(4a)** into which a high-pressure fluid is introduced, the intermediate-pressure space **(4b)** being obtained by compressing, in the low-stage side compression chamber **(51)**, the intermediate-pressure fluid contained in the intermediate-pressure space **(4b)** and discharged from the high-stage side compression chamber **(52)**.

6. The rotary compressor of Claim 5, wherein

the intermediate-pressure space **(4b)** is formed below the high-pressure space **(4a)**, and

the casing **(10)** includes an oil return passage **(80)** through which the high-pressure space **(4a)** communicates with the intermediate-pressure space **(4b)**.

7. The rotary compressor of Claim 1 further comprising a driving mechanism **(30)** for driving the rotation mechanism **(20)**,

wherein the driving mechanism **(30)** includes a stator **(32)**, a rotor **(31)** and a drive shaft **(33)** coupled to the rotor **(31)**,

the drive shaft **(33)** includes an eccentric part **(35)** that is eccentric from the center of rotation,

the eccentric part **(35)** is coupled to the rotor **(20)**, and

a part of the drive shaft **(33)** located to both axial sides of the eccentric part **(35)** is supported via bearing parts **(18, 19)** in a casing **(10)**.

8. The rotary compressor of Claim 1, wherein

the piston **(22)** has a shape of C obtained by cutting an annular ring,

the blade **(23)** extends from the inner peripheral wall surface of the cylinder chamber **(50)** to the outer peripheral wall surface thereof and passes through the cut part of the piston **(22)**, and

swing bushes **(27)** coming in surface contact with the piston **(22)** and the blade **(23)** are disposed in the cut part of the piston **(22)** such that the blade **(23)** is reciprocatable and the blade **(23)** is swingable relative to the piston **(22)**.